AMENDMENTS TO THE CLAIMS:

-This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (**Canceled**).

2. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, wherein the searches for a match are made by the logic sorting means within the lists of the elements of the ~~directories of~~ lower level and of higher level ~~addresses~~ address directories by following a dichotomy procedure in previously ordered lists consisting of repeatedly subdividing in two parts the previously ordered lists until finding a matching element.

3. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, wherein the elements of the ~~directory of~~ lower level ~~addresses~~ address directory are stored in a first table, their addresses ~~(MAC/IP N°)~~ within this first table identifying the compatibility links associated with them.

4. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, wherein the elements of the directory of higher level ~~addresses~~ address directory are stored within a second table, each of them being associated, within this second table with a compatibility link (90) and with an assignment link.

5. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, ~~wherein the method is applied within the framework of~~ linked to Ethernet networks with packets respecting a first level protocol of MAC type and a second level protocol of IP type~~, and~~ wherein each element of the ~~directory of~~ lower level ~~addresses~~ address

directory holds at least one particular value of the MAC destination address field and one particular value of the IP destination address field.

6. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, ~~wherein the method is applied within the framework of~~ linked to Ethernet networks with packets respecting a first level protocol of MAC type imposing, among the service fields of a packet, a field identifying the protocol respected by the packets at the second level and a second level protocol of IP type, ~~characterized in that~~ wherein each element of the ~~directory of~~ lower level ~~addresses~~ address directory holds at least one particular value of the MAC destination address field, one particular value of the IP destination address field and a flag for invalidating the particular value of the IP destination address field in case of non-recognition of an IP type second level protocol.

7. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, ~~wherein the method is applied within the framework of~~ linked to a duplicate network consisting of two independent Ethernet networks each having access to the ~~installation~~ device, each of the two Ethernet networks having packets respecting a first level protocol of MAC type and a second level protocol of IP type, and ~~within the framework of installations is able to identify~~ having means for identifying the network or networks of origin of a packet, ~~characterized in that~~ wherein each element of the ~~directory of~~ lower level ~~addresses~~ directory holds at least one particular value of the MAC destination address field, one particular value of the IP destination address field, an identifier of the network or networks of origin of the packet compatible with these particular values of MAC and IP destination address field, and a validation flag for the identifier of the network or networks of origin of the packet.

8. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, ~~wherein the method is applied within the framework of~~ linked to Ethernet networks with packets respecting a first level protocol of MAC type imposing, among the service fields

of a packet, a field identifying the protocols respected by the packets at the second level, a second level protocol of IP type and a third level protocol belonging to a group of protocols containing the UDP and TCP protocols, ~~characterized in that~~ wherein each element of the ~~directory of~~ higher ~~levels~~ level directory holds at least one particular value of destination port UDP/TCP address field and a double flag for validating the particular value of destination port UDP/TCP address field identifying at the same time a third level protocol compatible with said particular value of destination port UDP/TCP address field.

9. (**Currently Amended**) The ~~method~~ device as claimed in ~~claim 1~~ claim 10, ~~wherein the method is applied within the framework of~~ linked to a duplicate network consisting of two independent Ethernet networks each having access to the ~~installation~~device, each of the two Ethernet networks having packets respecting a first level protocol of MAC type, a second level protocol of IP type and a third level protocol belonging to a group of protocols containing the UDP and TCP protocols, and ~~within the framework of installations able to identify~~ having means for identifying the network or networks of origin of the packet, ~~characterized in that~~ wherein each element of the ~~directory of~~higher ~~levels~~ level directory holds at least one particular value of destination port UDP/TCP address field, a double flag for validating the particular value of destination port UDP/TCP address field identifying at the same time a third level protocol compatible with said particular value of destination port UDP/TCP address field, an identifier of the network or networks of origin of the packets that are compatible with this particular value of destination port UDP/TCP address field, and a validation flag for the identifier of the network or networks of origin of the packet.

10. (**New**) A device linked to a data packet transmission network, the device comprising means for selecting and sorting data packets made available by at least one packet data transmission network having a packet format configured to comply with three levels of protocols, the three levels of protocols including:

- a first level protocol corresponding to a network transmission physical layer, the first level protocol imposing a general format of a packet including a first level payload-data field and first level service information fields, including a first physical layer destination address, assigned to a first destination address and a second physical layer destination address assigned to a second level protocol identifier,

- a second level protocol imposing the format of the first level payload-data field with a partitioning of the first level payload-data field into a second level payload-data field (6a) and second level service information fields, of which one is a second level destination address assigned to a second destination address, and another second level destination address is assigned to a third level protocol identifier, and

- a third level protocol imposing the format of the second level payload-data field with a partition of the second level payload-data field into a third level payload-data field and into third level service data fields,

said means for selecting and sorting data packets comprising:

- means for constructing a lower level address directory mustering, in a form of a list of elements, the various values taken by the addressing information appearing in the service information fields of the protocols of the first two levels when they relate to the device,

- means for constructing a higher address directory mustering, in the form of a list of elements, the various values taken by the addressing information appearing in the service information fields of the protocols of levels higher than the second level when they relate to the device,

- means for establishing compatibility links that link each element of the list of the lower address directory with one or more elements of the list of the higher level address directory, these compatibility links signaling the possibility, in respect of two linked elements, of simultaneously being in the service information fields of one and the same packet,

- means for establishing assignment links that link each element of the list of the higher level address directory with at least one reception port of the device, and

- logic means for sorting each packet made available to the device by the data transmission networks by:

    - reading the addressing information contained in the service information fields of the protocols of the first and second levels,

    - searching for a match between the addressing information read from the service information fields of the protocols of the first and second levels and an element of the list of the directory of lower level addresses,

  in the absence of any matching element,

    - rejecting the packet,

  in the presence of a matching element,

    - taking into consideration the compatibility link of the first matching element so as to select from the list of elements the higher levels addressing directory, the compatible elements,

    - reading the addressing information contained in the service information fields of the protocols of levels higher than the second,

  when addressing information containing the service information fields of the protocols of levels higher than the second are present,

    - searching for a match between this information and one of the compatible elements of the list of the directory of higher level addresses,

  in the absence of matching elements,

    - rejecting the packet,

  in the presence of a matching element,

    - selecting the packet made available,

    - taking into consideration the assignment link of the matching element,

    - addressing the payload data of the packet to the reception ports of the device that are designated by the assignment link, and

- creating, if it does not already exist, an allocated message descriptor establishing a relation between the reception ports designated by the assignment link, the compatibility link and the value of a possible second level service information field assigned to a message fragment identification so as to make it possible to reconcile later, the incoming fragments not possessing any destination address information in the service information fields of the protocols of levels higher than the second,

when addressing information contained in the service information fields of the protocols of levels higher than the second are not present,

- searching through the open allocated message descriptors for a match at the level of the compatibility link and of the value of a possible second level service information field assigned to a message fragment identification,

in the absence of matching elements,

- rejecting the packet,

in the presence of a matching element,

- selecting the packet made available,
- taking into consideration the assignment link of the matching element,
- addressing the payload data of the packet to the reception ports of the device that are designated by the assignment link, and
- searching through the service information fields of the second level of the packet for an end of message information item making it possible to terminate the allocated message descriptor considered.